

PATENT SPECIFICATION

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(72) Inventor JOZEF FULIER



(54) A RIVET FOR BLIND OR ONE-SIDED RIVETTING

- (71) We, VYSKUMNY USTAV MECHANIZACIE A AUTOMATIZACIE, a Czechoslovak body corporate, of Nove Mesto nad Vahom, Czechoslovakia, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—
- 10 This invention relates to a hollow rivet for blind or one-sided riveting by means of a riveting tool with a pull mandrel.
- One type of known rivet for one sided riveting by means of a riveting tool with a pull mandrel has one end of its shaft reinforced. This reinforcement of the shaft end secures an increased resistance to the passage of the mandrel pulled through the rivet in the course of the riveting operation, enabling a closing rivet head of the rivet joint to be formed. This reinforcing of the shaft end is achieved either by narrowing the clearance of the shaft toward the shaft end so that the hollow is at this place conical, or by providing a shoulder on the external circumference of the shaft, which requires provision of special hollow rivets, which are in comparison with common tube shaped rivets more complicated and expensive. In addition rivet joints formed by these rivets having a reinforced end have frequently closing heads with a small seat surface.
- 35 The aim of this invention is to provide a rivet, for one sided riveting by means of a pull mandrel, which is cheap, easy to manufacture and provides rivet joints of sufficient strength.
- 40 The invention provides a rivet for blind or one-sided riveting comprising a hollow cylindrical shaft of uniform diameter provided with a head part at one end and with a contraction at the opposite end, the contraction being formed by at least two inwardly extending portions situated symmetrically with respect to the axis of the shaft of the rivet and deformable by pulling a mandrel through the shaft to form a closing head on the inaccessible side of the rivet joint.

A rivet according to this invention may be made with a conventional tubular rivet, which influences favourably its manufacturing costs. A further advantage is the formation of a closing head on the inaccessible end of the rivet joint which has a wider seat surface.

One embodiment of the rivet according to this invention is shown by way of example, in the accompanying diagrammatic drawing, wherein:

Fig. 1 is a rivet in axial section,

Fig. 2 is an end view of the rivet shown in Fig. 1,

Fig. 3 is a view of the rivet after its placing on the mandrel of a riveting tool, and

Fig. 4 an axial section of a rivet joint made with the rivet according to this invention.

The rivet 10 according to this invention shown in the drawing is composed of a substantially tubular hollow shaft 1 of uniform diameter. The shaft 11 is provided at one end with a head part 13 and at its opposite end 14 with, for instance, six radially inwardly compressed portions 15 arranged symmetrically on the circumference of the shaft end 14, forming thus a contraction 16 of the internal diameter. The smallest internal diameter of this contraction 16 corresponds to the diameter of a shaft portion of a full-mandrel 17 of a riveting tool which has a widened riveting head at one end. The riveting tool also comprises an outer sleeve portion accommodating the pull-mandrel 17 as indicated diagrammatically in Fig. 3. A rivetting operating proceeds in a known way by first slipping a number of hollow rivets 10 on the mandrel 17, whereafter the foremost rivet 10 is inserted into openings 18 in parts 19, 20 to be connected and by pulling mandrel 17 through the contraction 16 and the hollow in the rivet 10, a closing head 21 on the inaccessible side of the rivet joint is formed. The head part 13 is also finished in the course of this operation by the outer sleeve portion of the tool and the shaft 11 is also partially upset, increasing thus the strength of the rivet joint. The head part 13 can have, if required, any other shape than

that shown in the drawing. It can be for instance part-spherical or frusto-conical without deviating from the scope of the claims.

5 WHAT WE CLAIM IS:—

- 10 1. A rivet for blind or one sided riveting comprising a hollow cylindrical shaft of uniform diameter provided with a head part at one end and with a contraction at the opposite end, the contraction being formed by at least two inwardly extending portions situated symmetrically with respect to the axis of the shaft of the rivet and deformable by pulling a mandrel through the shaft to

form a closing head on the inaccessible side 15 of the rivet joint.

2. A rivet according to Claim 1 wherein the head part is frustoconical or part-spherical.

3. A rivet for blind or one-sided riveting, 20 substantially as herein described, with reference to and as shown in the accompanying drawing.

For the Applicants,
LLOYD WISE, BOULY & HAIG,
Chartered Patent Agents,
Norman House,
105—109 Strand,
London, WC2R 0AE.

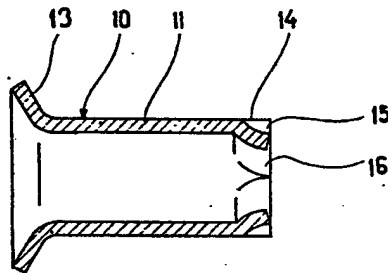


Fig. 1

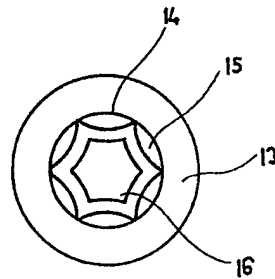


Fig. 2

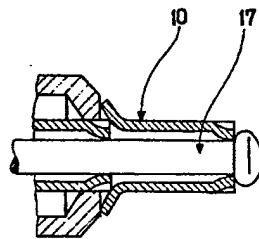


Fig. 3

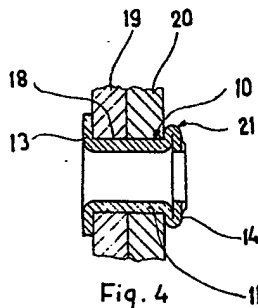


Fig. 4